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NATIONAL COMMUNICATIONS FROM PARTIES INCLUDED IN ANNEX I TO THE CONVENTION

Report on clarifications, additions and amendments to the revised guidelines for the preparation of national communications by Parties included in Annex I to the Convention (including part I of the reporting guidelines on inventories)

Note by the secretariat

CONTENTS

		Paragraphs	Page
I.	INTRODUCTION	1 - 17	3
A.	Mandate	1 - 5	3
B.	Background	6 - 11	4
C.	Scope of the note	12 - 16	5
D.	Possible action by the SBSTA	17	6

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		Paragraphs	Page
II.	MAJOR ISSUES RELATED TO THE UNFCCC REPORTING GUIDELINES ON INVENTORIES	18 - 21	6
	Annex		
	Draft guidelines for the preparation of national communications by Parties included in Annex I to the Convention, part I: inventories	1 - 36	9
A.	Objectives	1	9
B.	Principles and definitions	2 - 4	9
C.	Scope	5	10
D.	Base year	6	11
E.	Methods	7 - 12	11
F.	Reporting	13 - 34	13
G.	Record keeping	35	19
H.	Systematic updating of the guidelines	36	19
	Table		
	1995 IPCC global warming potential (GWP) values based on the effects of greenhouse gases over a 100-year time horizon		20

I. INTRODUCTION

A. Mandate

1. The Subsidiary Body for Scientific and Technological Advice (SBSTA), at its seventh session, agreed to consider at its ninth session what, if any, additions and/or amendments to the revised guidelines for the preparation of national communications by Parties included in Annex I to the Convention (Annex I Parties) would be required, taking into account the results of the ongoing methodological activities related to greenhouse gas (GHG) inventories, together with inputs from other bodies, such as the Intergovernmental Panel on Climate Change (IPCC) (FCCC/SBSTA/1997/14, paragraph 16 (d)).

2. At its eighth session, the SBSTA requested the secretariat to send a questionnaire to Parties on clarifications, additions and/or amendments to the revised guidelines for the preparation of national communications from Parties included in Annex I to the Convention, referred to in this note as the UNFCCC guidelines. The SBSTA requested Parties to provide submissions to the secretariat answering this questionnaire. The SBSTA also decided that the preparatory work needed to enable the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP) to adopt, at its first session, guidelines for the preparation of the information required under Article 7 of the Protocol would be integrated, to the extent practicable, with its existing work under the Convention on national communications from Annex I Parties (FCCC/SBSTA/1998/6, paragraph 30 (a) and (b)).

3. The SBSTA, at the same session, requested the secretariat to organize a workshop with the participation of methodological experts from the roster, as well as from other relevant organizations, to develop proposals to resolve the methodological issues identified by Parties and the secretariat while processing GHG inventories included in second national communications. It also stated that the conclusions of such a workshop, and of any workshop organized by the secretariat related to possible additions and/or amendments to the UNFCCC guidelines, should be available for the tenth session of the SBSTA (FCCC/SBSTA/1998/6, paragraph 40 (d)).

4. Also at its eighth session, the SBSTA requested the secretariat to organize a second workshop, with the participation of representatives from Parties, to assess the responses to the above-mentioned questionnaire. The SBSTA further requested the secretariat to prepare a paper on the results of this workshop for consideration at its tenth session, with the aim of proposing any necessary clarifications, additions and/or amendments to the UNFCCC guidelines, at the fifth session of the Conference of the Parties (COP) (FCCC/SBSTA/1998/6, para 30 (c)).

5. The SBSTA, at its ninth session, requested the secretariat to prepare a report addressing clarifications, additions and amendments to the UNFCCC guidelines, particularly the GHG inventory section, taking into consideration information from both workshops, for its tenth session (FCCC/SBSTA/1998/9, para. 51 (e)).

B. Background

6. The guidelines for the preparation of national communications by Parties included in Annex I to the Convention were adopted by the Intergovernmental Negotiating Committee for the Framework Convention on Climate Change at its ninth session (A/AC.237/55, decision 9/2). These guidelines were revised by the Conference of the Parties at its second session (FCCC/CP/1996/15/Add.1, decision 9/CP.2) and the revised guidelines were used by Annex I Parties in preparing their second national communications and their annual submissions of national GHG inventories.

7. The secretariat sent out a questionnaire on clarifications, additions and/or amendments to the UNFCCC guidelines to all Parties in October 1998. Responses submitted to the secretariat are compiled in FCCC/SB/1999/MISC.2.

8. The secretariat organized a workshop on methodological issues related to GHG inventories from 9 to 11 December 1998 in Bonn with the participation of 79 experts, including 24 experts from non-Annex I Parties and six experts from international organizations. The report on this workshop is contained in FCCC/SBSTA/1999/INF.1. The SBSTA invited Parties to submit initial information related to the options addressed at the workshop, and these submissions are contained in FCCC/SB/1999/MISC.5. The experts suggested, *inter alia*, that the guidelines on reporting GHG inventories should be separate from the guidelines on reporting national communications. They also suggested clarifications, additions and amendments that might be incorporated in the guidelines for the reporting of GHG inventories by Parties included in Annex I to the Convention.

9. The secretariat organized a second workshop, with the participation of representatives of Parties, on generic issues related to the UNFCCC guidelines from 17 to 19 March 1999 in Bonn. This workshop was chaired by the Chairman of the SBSTA, Mr. Kok Kee Chow (Malaysia), and was attended by 61 representatives of Parties and six experts from international organizations. It was separated into two working groups, one addressing guidance on GHG inventories and the other addressing guidance on other aspects of national communications. This approach was in line with suggestions made at the first workshop and in subsequent submissions by Parties, to separate the UNFCCC guidelines into two parts.

10. Mr. Kok Kee Chow requested Mr. Jim Penman (United Kingdom) to chair the working group on GHG inventories. This working group was attended by 31 representatives of Parties, from a total of 18 Parties, and two experts from international organizations. Participants were provided with document FCCC/SBSTA/1999/INF.1 and its addendum (Add.1), which contains an initial draft of the guidelines for the reporting of GHG inventories by Annex I Parties. They were also provided with a working paper containing a draft of the common reporting format for the provision of inventory information to the Convention.

11. The working group on non-inventory aspects of national communications was chaired by Mr. Kok Kee Chow. This working group considered the following elements of the UNFCCC guidelines: policies and measures; projections and estimates of effects of measures; financial resources and transfer of technology; research and systematic observation; vulnerability, climate change impacts and adaptation; education, training, and public awareness; national circumstances; and the purpose of guidelines on non-inventory aspects of national communications.

C. Scope of the note

12. This note and its two addenda (FCCC/SB/1999/1/Add.1 and Add.2) respond to the mandates referred to in paragraphs 4 and 5 above. These three documents report on the workshop on generic issues related to the UNFCCC guidelines, held in Bonn from 17 to 19 March 1999, and contain drafts of all the components of the guidelines for the preparation of national communications by Parties included in Annex I to the Convention.

13. This note contains information on major issues discussed at the workshop related to guidance on GHG inventories. The annex to this note contains a draft text of the guidelines for the preparation of national communications by Parties included in Annex I to the Convention, part I: inventories, referred to in this note as the UNFCCC reporting guidelines on inventories. The draft guidelines were prepared by the secretariat in consultation with the Chairman of the SBSTA, taking into account the deliberations at both workshops and submissions from Parties.

14. The first addendum (FCCC/SB/1999/1/Add. 1) contains a draft of a common reporting format for the provision of inventory information by Annex I Parties. It is intended that this will be an integral part of the UNFCCC reporting guidelines on inventories.

15. The second addendum (FCCC/SB/1999/1/Add.2) provides information on issues discussed at the workshop related to the reporting of information on policies and measures, projections, financial resources and transfer of technology and other matters. The annex to this addendum contains a draft text of the guidelines for the preparation of national communications by Parties, included in Annex I to the Convention, part II: other issues. The draft guidelines were prepared by the Chairman of the SBSTA with the assistance of the secretariat, taking into account the deliberations at the workshop referred to in paragraph 9 and submissions from Parties. When considering this note, Parties may wish to consider the practical implications of the approach, that is the preparation of both an annual electronic submission using a common reporting format and a national inventory report.

16. In addition, Parties may wish to take note of the proposed technical review process related to inventories (see FCCC/SBSTA/1999/3) and of the work programme on methodological issues related to Articles 5, 7 and 8 of the Kyoto Protocol (see FCCC/SB/1999/2). Parties may also wish to take account of any guidance which may be provided by the SBI with respect to information needs and reporting on technology transfer and

financial assistance, in line with decision 11/CP.4 (FCCC/CP/1998/16/Add.1).

D. Possible action by the SBSTA

17. The SBSTA may wish to consider the information contained in this note and its two addenda, endorse or modify their main elements and provide guidance related to a draft decision for consideration by the COP at its fifth session. The SBSTA may wish to specifically consider the list and content of the tables provided in addendum 1 to this document. If modifications are warranted, the SBSTA may wish to provide guidance to the secretariat in relation to preparations for its eleventh session.

II. MAJOR ISSUES RELATED TO THE UNFCCC REPORTING GUIDELINES ON INVENTORIES

18. Participants in the working group on inventories, referred to in paragraph 10, discussed a draft of the UNFCCC reporting guidelines on inventories (FCCC/SBSTA/1999/INF.1/Add.1) and submissions from Parties on this topic (FCCC/SB/1999/MISC.2 and MISC.5). The working group discussed all the elements of the draft UNFCCC reporting guidelines on inventories and agreed that it was a good basis for the reporting of inventory information by Annex I Parties. It suggested a number of revisions to the text and identified issues that may need further consideration by the SBSTA.

19. The working group suggested that the secretariat, in consultation with the Chairman of the SBSTA, prepare a revised text of the UNFCCC reporting guidelines on inventories for consideration by the SBSTA at its tenth session. This draft text is contained in the annex to this note.

20. The working group also considered a draft common reporting format prepared by the secretariat on the basis of conclusions from the first workshop referred to in paragraph 8 above. The common reporting format is intended to be an integral part of the guidelines. A revised version of the common reporting format, taking into account the deliberations of the working group, is contained in FCCC/SB/1999/1/Add.1.

21. The working group concluded that:

(a) The approach to reporting inventories should include:

(i) An annual submission to the secretariat, by 15 April for the last but one year prior to the year of submission, based on a common reporting format; and

(ii) The preparation of a national inventory report containing details and complete information on a GHG inventory. There was general agreement

that this should cover all years from the base year to the year of the report. The national inventory report should be updated annually to reflect changes and may be either published in its entirety as a document or made available on national Web sites in its entirety. The group discussed at some length, but did not reach a conclusion about whether the national inventory report should also be submitted to the COP;

(b) The annual inventory submission, using the common reporting format, would improve comparability and verifiability while the national inventory report would aim to make inventories completely transparent;

(c) As this was the first opportunity for the participants to review the common reporting format, the group urged the secretariat to make the format available on the Web by 15 April. The participants suggested that governments might wish to provide comments to the secretariat on the common reporting format by 15 May in time for the tenth session of the SBSTA;

(d) There will be a need for a COP decision related to the guidelines and that such a decision might include, for example, the uses of the annual GHG inventory data, the role of the secretariat in identifying methodological issues, and the need for Parties to clarify issues related to inventories following any review process;

(e) The issue of verification of data needs further exploration and could usefully be defined in the UNFCCC reporting guidelines on inventories. Many participants agreed that, while comparisons with the reference approach help verify CO_2 emissions from fuel combustion, the reference approach might not be useful for other sectors and that such comparisons were not a sufficient means of verifying data. Other approaches to verification might include quality assessment and control procedures and comparisons with direct measurements. The results of peer and public reviews might also be relevant. In general, verification could be regarded as testing the transparency, consistency, comparability, completeness and accuracy of an inventory, where these terms are defined in section B of the UNFCCC reporting guidelines on inventories. The notion of completeness can also be regarded as extending to territorial completeness as well as to coverage of gases and sectors;

(f) The UNFCCC reporting guidelines on inventories should cross-reference, as appropriate, any review process related to GHG inventories (see FCCC/SBSTA/1999/3);

(g) The group took note of the activities of the IPCC related to good practice and land-use, land-use change and forestry. It also noted that some aspects of the preparatory activities related to the Kyoto Protocol may be relevant to work on the reporting guidelines. It urged the secretariat to develop a time-line showing the relationship of the various activities;

(h) The group held a discussion on the meaning of the words *shall, should* and

encouraged as used in draft revised text. It was generally felt that the word "shall" should be used when there is a clear requirement indicated by the language of the Convention, that the word "should" would refer to other elements that are mandatory and "encouraged" would refer to optional elements. The secretariat was requested to consult with its legal experts on the matter.

Annex

DRAFT GUIDELINES FOR THE PREPARATION OF NATIONAL COMMUNICATIONS BY PARTIES INCLUDED IN ANNEX I TO THE CONVENTION

PART I: INVENTORIES

A. Objectives

1. The objectives of these guidelines for the preparation and reporting of national inventories of greenhouse gas emissions by sources and removals by sinks for the purposes of the United Nations Framework Convention on Climate Change (UNFCCC) by Parties included in Annex I to the Convention (Annex I Parties), referred to below as the UNFCCC reporting guidelines on inventories, are:

(a) To assist Annex I Parties in meeting their commitments under Articles 4 and 12 of the Convention and in preparing to meet possible future commitments under Articles 3, 5 and 7 of the Kyoto Protocol;

(b) To facilitate the process of considering annual national inventories and national inventories included in national communications, including the preparation of technical analysis and synthesis documentation; and

(c) To facilitate the process of verification and technical assessment and expert review of the inventory information.

B. Principles and definitions

2. National greenhouse gas inventories, referred to below only as inventories, should[1] be *transparent*, *consistent*, *comparable*, *complete* and *accurate*.

3. Inventories should be prepared using *comparable* methodologies agreed upon by the

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[1] In relation to the use of the terms "shall", "should" and "encourage" in this draft text of the UNFCCC reporting guidelines on inventories, the secretariat followed the general understanding of the representatives of Parties attending the second workshop on generic issues related to guidelines for the preparation of national communications by Parties included in Annex I to the Convention: "The group held a discussion on the meaning of the words *shall, should* and *encouraged* as used in the draft revised text. It was generally felt that the word "shall" should be used when there is a clear requirement indicated by the language of the Convention, that the word "should" would refer to other elements that are mandatory and "encouraged" would refer to optional elements. The secretariat was requested to consult with its legal experts on the matter" (FCCC/SB/1999/1, para. 21 (h)). This footnote will be removed from the final version of the UNFCCC reporting guidelines on inventories.

Conference of the Parties (COP), as indicated in paragraph 7 below, and any *good practices*[2] agreed upon by the COP at a future session.

4. In the context of these UNFCCC reporting guidelines on inventories:

Transparency means that the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication of the inventory by users of the reported information. The *transparency* of inventories is fundamental to the success of the process for the communication and consideration of information;

Consistency means that an inventory should be internally *consistent* in all its elements with inventories of other years. An inventory is *consistent* if the same methodologies are used for the base and all subsequent years;

Comparability means that estimates of emissions and removals reported by Parties in inventories should be *comparable* among Parties. For this purpose, Parties should use the methodologies agreed by the COP for estimating and reporting inventories. The allocation of different source/sink categories should follow the split of the Revised 1996 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, at the level of its summary and sectoral tables;

Completeness means that an inventory covers all sources and sinks, as well as all gases, included in the Revised 1996 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, as well as other existing relevant source/sink categories which are specific to individual Parties, and therefore may not be included in the IPCC Guidelines;

Accuracy is a relative measure of the exactness of an emission or removal estimate. Estimates should be *accurate* in the sense that they are systematically neither over or under estimates of true emissions or removals, as far as they can be judged, and that uncertainties are reduced as far as practicable. Appropriate methodologies conforming to guidance on *good practices* should be used to promote *accuracy* in inventories.

C. Scope

5. These UNFCCC reporting guidelines on inventories cover the estimation and reporting of greenhouse gas emissions and removals of both annual inventories and inventories included in

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[2] The Intergovernmental Panel on Climate Change (IPCC) currently is developing guidance on *good practices* as part of its work related to uncertainties in inventories. This guidance may be available for consideration by the SBSTA in 2000. Guidance on *good practices* may include, *inter alia*, advice on the choice of methodology, emission factors, activity data, and uncertainties, and on a series of quality assessment and quality control procedures which may be applied during the preparation of inventories.

national communications, as requested by decision 11/CP.4 (FCCC/CP/1998/16/Add.1). Inventory information on emissions of greenhouse gases by sources and removals by sinks should be submitted on an annual basis by 15 April for the last but one year prior to the year of submission (e.g. data for the year 1998 are to be submitted by 15 April 2000). National communications should be submitted according to the decisions of the Conference of the Parties. Inventory information will be reviewed according to procedures adopted by the Conference.

D. Base year

6. According to the provisions of Article 4.2(b) of the Convention, the year 1990 should be the base year for the estimation and reporting of inventories. According to the provisions of Article 4.6 of the Convention and decisions 9/CP.2 and 11/CP.4, the following Annex I Parties that are undergoing the process of transition to a market economy, are allowed to use a base year or a period of years other than 1990, as follows:

Bulgaria:	to use 1988
Hungary:	to use the average of the years 1985 to 1987
Poland:	to use 1988
Romania:	to use 1989
Slovenia:	to use 1986

E. Methods

Methodology

7. Parties shall use the Revised 1996 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories, referred to below as the IPCC Guidelines, to estimate and report on anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol. In accordance with the IPCC Guidelines, Parties should be able to use different methods (tiers) included in those guidelines, giving priority to those methods which are believed to produce the most *accurate* estimates, depending on the data availability. In accordance with the IPCC Guidelines, Parties can also use national methodologies, provided they better reflect their national situation and are well documented.

8. The IPCC Guidelines offer a default methodology which includes default emission factors and in some cases default activity data. As these default data, factors and assumptions may not always be appropriate for specific national contexts, it is preferable that Parties use their own national emission factors and activity data, where available, provided that the reporting of the emission and removal estimates and their underlying data is *transparent*.

Good practices

9. When preparing inventories, Parties should apply any *good practices*[3] agreed upon by the COP, in order to improve *transparency*, *consistency*, *comparability*, *completeness* and *accuracy*.

Recalculations

10. The purpose of recalculations is to improve *accuracy* and *completeness* by ensuring the *consistency* of time series. The inventories of an entire time series, including the base year and all subsequent years for which inventories have been reported, should be estimated using the same methodologies, and the underlying activity data and emission factors should be obtained and used in a *consistent* manner. Where the methodology or manner in which underlying activity data and emission factors are gathered has changed, Parties should recalculate inventories for the base and subsequent years.

11. However, in some cases activity data may be missing for some historical years, including the base year. In this case, emissions or removals for these years may need to be calculated with alternative methodologies. In these instances, Parties should demonstrate that the time series is *consistent*. The alternative methodologies should be documented in a *transparent* manner, taking into account any *good practices*.[4]

Uncertainties

12. Parties should estimate the uncertainties of their inventories using the best methodologies available to them, taking account of any *good practices*.[5]

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[3] See footnote 2.

[4] Further elaboration on this issue, including documentation, may be required to demonstrate *consistency*. Information on how to standardize these methodologies should be available upon the completion of the IPCC guidance on *good practices*.

[5] These UNFCCC reporting guidelines on inventories do not provide final guidance on reporting uncertainties, due to the fact that guidance on good practices for estimating and reporting uncertainties is currently under development by the IPCC and may be agreed upon by the COP at a future session.

F. Reporting

1. General guidance

Estimates of emissions and removals

13. Article 12.1(a) of the Convention requires that each Party shall communicate to the COP, through the secretariat, *inter alia*, a national inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol. At a minimum, inventories shall contain information on the following six greenhouse gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF_6). Parties should also provide information on the following indirect greenhouse gases: carbon monoxide (CO), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOCs). Parties are encouraged to provide information on sulphur oxides (SO_x).

14. Greenhouse gas emissions and removals should be presented on a gas-by-gas basis in units of mass (Gg) with emissions by sources listed separately from removals by sinks, except in cases where it may be technically impossible to separate information on sources and sinks in the areas of land-use, land-use change and forestry. For HFCs and PFCs, emissions should be reported on a disaggregated basis for each relevant chemical in the category, taking into account the provisions of paragraph 19.

15. In addition, and in accordance with decision 2/CP.3, Parties should report aggregate emissions and removals of greenhouse gases, expressed in CO_2 equivalent terms at summary inventory level,[6] using global warming potential (GWP) values provided by the IPCC in its Second Assessment Report, referred to below as 1995 IPCC GWP values, based on the effects of greenhouse gases over a 100-year time horizon. A list of these values is given in the table at the end of this document.

16. Consistent with decision 2/CP.3, Parties should report actual emissions of HFCs, PFCs and SF_6, where data are available, providing disaggregated data by chemical species (for example, HFC-143a) and source category in mass units, and in CO_2 equivalents using 1995 IPCC GWP values, as contained in the above-mentioned table. Parties should make every effort to develop the necessary sources of data for reporting actual emissions. Until they have the necessary data, Parties should report disaggregated potential emissions for these chemicals. Even when Parties report actual emissions, they should also report potential emissions for the relevant sources of these gases, for reasons of *transparency* and *comparability*.

17. Parties should report emissions and removals of any greenhouse gases whose GWP

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[6] CO_2 equivalent emissions should be provided at a level of disaggregation similar to summary table 7A of the IPCC Guidelines.

values have been identified by the IPCC and adopted by the COP, from the year they were identified, as well as for preceding years, according to paragraphs 15 and 16 above. Parties are strongly encouraged to also report emissions of greenhouse gases for which 100-year GWP values are available, but not yet adopted by the COP. These emissions and other related information should be reported separately from national totals.

18. In accordance with the IPCC Guidelines, international aviation and marine bunker fuel emissions, based upon fuel sold to ships or aircraft engaged in international transport, should not be included in national totals, but reported separately. Parties should also report emissions from international aviation and marine bunker fuels as two separate entries in their inventories.

19. Emissions and removals should be reported on the most disaggregated level of each source/sink category, taking into account that a minimum level of aggregation may be required to protect confidential business and military information.

Recalculations

20. Recalculations of previously submitted greenhouse gas estimates as a result of changes in methodologies, changes in the manner in which emission factors and activity data are obtained and used or the inclusion of new sources or sinks, which have existed since the base but were not previously reported, should be reported for the base year and all subsequent years, up to the year in which the recalculations are made. Recalculations should be justified as an improvement in the *accuracy* and *completeness* of the inventory and to ensure the *consistency* of the time series. In this regard, Parties should report these justifications. The information on the procedures used for performing the recalculations, changes in the calculation methods, emission factors and activity data used, and inclusion of sources or sinks, should be documented in a *transparent* manner, indicating the relevant changes in each source or sink category where these changes have taken place.

Completeness

21. Where methodological or data gaps in inventories exist, information on these gaps should be presented in a *transparent* manner. Parties should clearly indicate the sources and sinks not considered in their inventories but considered in the IPCC Guidelines, and explain the reason for the exclusion, in order to avoid arbitrary interpretation of the exclusion of specific sources or sinks by a given Party. In addition, Parties should use the standard indicators presented below to fill the blanks in all the tables of inventories. This approach facilitates assessment of the *completeness* of an inventory. The standard indicators are as follows:

(a) "NO" (not occurring) for emissions by sources and removals by sinks of greenhouse gases that do not occur for a particular gas or source/sink category within a country;

(b) "NE" (not estimated) for existing emissions by sources and removals by sinks

of greenhouse gases which have not been estimated;

(c) "NA" (not applicable) for activities in a given source/sink category that do not result in emissions or removals of a specific gas (categories in the common reporting format for which "NA" is applicable are shaded and need not be filled in);

(d) "IE" (included elsewhere) for emissions by sources and removals by sinks of greenhouse gases estimated but included elsewhere in the inventory instead of the expected source/sink category. (Where "IE" is used in an inventory, the Party should indicate by means of a footnote where in the inventory the emissions or removals from the displaced source/sink category have been included and the Party should give the reasons for this inclusion deviating from the expected category);

(e) "C" (confidential) for emissions by sources and removals by sinks of greenhouse gases which are confidential, given the provisions of paragraph 19 above; and

(f) "0" for emissions by sources and removals by sinks of greenhouse gases which are estimated to be less than one half the unit being used to record the inventory table, and which therefore appear as zero after rounding. The amount should still be included in the national totals and any relevant subtotals.[7]

22. If Parties estimate emissions and removals from country-specific sources or sinks, or of gases, which are not part of the IPCC Guidelines, they should explicitly describe what source/sink categories these are, as well as what methodologies, emission factors and activity data have been used for their estimation.

Verification[8]

23. In accordance with the IPCC Guidelines, and for verification purposes, Parties should compare their national estimates of carbon dioxide emissions from *fuel combustion* with those estimates obtained using the IPCC reference approach, and report on them both in annual inventory submissions and inventories included in national communications. Parties are encouraged to compare their national estimates, other than carbon dioxide emissions from *fuel combustion*, with estimates obtained using the IPCC default methodology for other significant greenhouse gas source or sink categories. The results could be given as percentage differences

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[7] The level of detail appropriate to very small source/sink categories is under consideration by the IPCC in its work on *good practices* and Parties should use any guidance which is subsequently agreed by the COP.

[8] See document FCCC/SB/1999/1, paragraph 21(e) for further discussion of the issue of verification, including the possibility of defining the term in these guidelines. The SBSTA may wish to consider this issue when more data are available or on completion of the development of guidance on *good practices* by the IPCC and, as appropriate, expand this section in any subsequent revisions to these guidelines.

with respect to the national estimate, in order to avoid the appearance of Parties having dual estimates.

Response to inventory assessment

24. Parties should report on questions raised in the context of any review process[9] and should provide adequate information to demonstrate that these questions have been resolved.

Uncertainties[10]

25. When reporting greenhouse gas emission and removal inventory data, the level of uncertainty associated with these data and their underlying assumptions should be indicated. The methodologies used for estimating uncertainties should be reported in a *transparent* manner. Parties are encouraged to report quantitative information on uncertainties where this is available.

Adjustments

26. Inventories are to be reported without adjustments related to climate variations or trade patterns of electricity. If Parties, in addition, carry out such adjustments to inventory data, they should be reported separately and in a *transparent* manner, with clear indications of the method followed.

27. Adjustments are regarded as important information in relation to the monitoring of emission and removal trends and the performance of national policies and measures. Individual Parties may choose whether adjustments are applied, in addition to reporting unadjusted inventory data, and if so, which methods are chosen. Parties are further encouraged to share with others their experience with the application of adjustments.

2. Common reporting format

28. Parties shall submit annually to the Convention, through the secretariat, the information required under the common reporting format (FCCC/SB/1999/1/Add.1). This information shall be submitted on an annual basis by 15 April for the last but one year prior to the year of submission, in accordance with paragraph 5. It should be formally submitted in both electronic form and hard copy.

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[9] By its decision 11/CP.4, the COP requested its subsidiary bodies to consider the scope, modalities and options for the review process, including the review of annual inventory information, and the need for more thorough consideration of national circumstances and reporting requirements under the Kyoto Protocol, with a view to adopting revised guidelines for the review process at the sixth session of the COP.

[10] More rigorous requirements for reporting uncertainties may be requested by the SBSTA once the ongoing work of the IPCC on this matter is completed.

29. The common reporting format[11] consists of:

(a) Summary and sectoral tables;

(b) Sectoral background data tables for reporting of aggregate emission factors and activity data;

(c) The IPCC worksheet 1-1 containing estimates of CO_2 emissions from fuel combustion using the IPCC reference approach and a table for comparing estimates under this reference approach with national estimates, as well as providing explanations of any significant differences;

(d) Tables for reporting aggregate CO_2 equivalent emissions and removals, recalculations, *completeness* of the inventory, uncertainty, feedstocks and bunkers, and a check-list of the main inventory information requested by these UNFCCC reporting guidelines on inventories.

30. In addition, the common reporting format includes a form to document anticipated future improvements in methodologies.

31. The common reporting format follows the source/sink category split of the IPCC sectoral tables. It provides a minimum set of information on methods, aggregate emission factors, and activity data, as well as relevant assumptions that underlie the estimates given in the sectoral tables.

32. The information provided by the common reporting format is aimed at enhancing the *comparability* and *transparency* of inventories by facilitating, *inter alia*, activity data and aggregate emission factor cross-comparisons among Parties, and easy identification of possible mistakes, misunderstandings and omissions in the inventories.

33. The common reporting format is a standardized format for electronically reporting estimates of greenhouse gas emissions and removals and other relevant information. It will be provided to Parties by the secretariat and will also be available on the UNFCCC Web site. The common reporting format allows for the improved handling of electronic submissions and facilitates the processing of inventory information and the preparation of useful technical analysis and synthesis documentation.

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[11] Detailed information on the common reporting format is provided in document FCCC/SB/1999/1/Add.1. The final set of tables to be included in these UNFCCC reporting guidelines on inventories will be defined according to the final common reporting format to be adopted by the COP.

3. National inventory report

34. In addition, Parties shall prepare a national inventory report containing detailed and *complete* information on their inventories for all years from the base year to the year of the current annual inventory submission, in order to ensure the *transparency* of the inventory. The national inventory report should be updated annually to reflect changes, and may be either published in its entirety as a document or made available in its entirety on national Web sites. It should include:

(a) The annual inventory information, submitted in accordance with paragraph 28, for all years from the base year[12] to the year of the current annual inventory submission;

(b) Worksheets[13] of detailed inventory calculations in each sector, for all years from the base year to the year of the current annual inventory submission, containing, *inter alia*, disaggregated national emission factors and activity data underlying the estimates;

(c) A description of the specific methodologies and assumptions used in each sector, including an indication of the level of complexity (IPCC tiers) applied and a description of any national methodology used by the Party;

(d) References or sources of information related to methodologies, emission factors and activity data, as well as the rationale for their selection;

(e) Information on assumptions and conventions underlying the emission and removal estimates, as well as the rationale for their selection;

(f) Specific information on feedstocks and bunkers:

(i) With regard to possible double counting or non-counting of emissions, Parties should indicate whether feedstocks have been accounted for in the inventory, and if so, how they have been accounted for;

(ii) Regarding the reporting of emissions from bunker fuels, Parties should explain how they distinguish between domestic marine and aviation emissions, which are to be included in national totals, and international bunker emissions;

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[12] According to the provisions of Article 4.6 of the Convention and decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition are allowed to use base years other than 1990, as mentioned in paragraph 6 above.

[13] Worksheets should be those used by the Party to estimate the inventory. They may be from the IPCC Guidelines, CORINAIR or national methods.

(g) Information on any recalculations related to previously submitted inventory data, as requested in paragraph 20 above;

(h) Information on uncertainties, as requested in paragraph 25 above; and

(i) Information clearly identifying changes with respect to the previous years.

G. Record keeping

35. Parties should gather and archive all relevant inventory information for each year, including all disaggregated emission factors, activity data and documentation about how these factors and data have been generated and aggregated for the reporting of the inventory. This information should allow the reconstruction of the inventory by the expert review teams. Inventory information should be archived from the base year, including the corresponding data of recalculations applied. The paper trail should enable estimates of emissions and removals to be traced back to the original disaggregated emission factors and activity data. This information should also facilitate the timely process of clarifying inventory data when the secretariat prepares annual compilations of inventories or assesses methodological issues. Parties are encouraged to collect and gather the information in a single national inventory facility or to, at least, keep the number of facilities to a minimum.

H. Systematic updating of the guidelines

36. Relevant future decisions, once taken by the COP, regarding the reporting of inventories under the Convention should be applied *mutatis mutandis* to these UNFCCC reporting guidelines on inventories, which shall be updated accordingly by the COP.

1995 IPCC global warming potential (GWP) values[1] based on the effects of greenhouse gases over a 100-year time horizon

Greenhouse gas	Chemical formula	1995 IPCC GWP
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous oxide	N_2O	310
Hydrofluorocarbons (HFCs)		
HFC-23	CHF_3	11700
HFC-32	CH_2F_2	650
HFC-41	CH_3F	150
HFC-43-10mee	$C_5H_2F_{10}$	1300
HFC-125	C_2HF_5	2800
HFC-134	$C_2H_2F_4$ (CHF_2CHF_2)	1000
HFC-134a	$C_2H_2F_4$ (CH_2FCF_3)	1300
HFC-152a	$C_2H_4F_2$ (CH_3CHF_2)	140
HFC-143	$C_2H_3F_3$ (CHF_2CH_2F)	300
HFC-143a	$C_2H_3F_3$ (CF_3CH_3)	3800
HFC-227ea	C_3HF_7	2900
HFC-236fa	$C_3H_2F_6$	6300
HFC-245ca	$C_3H_3F_5$	560
Perfluorocarbons		
Perfluoromethane	CF_4	6500
Perfluoroethane	C_2F_6	9200
Perfluoropropane	C_3F_8	7000
Perfluorobutane	C_4F_{10}	7000
Perfluorocyclobutane	c-C_4F_8	8700
Perfluoropentane	C_5F_{12}	7500
Perfluorohexane	C_6F_{14}	7400
Sulphur hexafluoride	SF_6	23900

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[1] As provided by the IPCC in its Second Assessment Report.